



Dart Hawkesbury
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200



Part No: D206-667-247TRN

Job Qty: 1 ea

Part Name: Crosstube Assembly, Mid Aft



Part Weight: 0 lbs

Status: Scheduled

Priority: High

Job Created: 11/7/17

Job Tracking No:

Due Date: 11/10/17

Created By: Victoria Michaud-Febrille

Type: Stock

Description:

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea	11/9/17	11/9/17	0.00	0.00	Start Up Crosstubes		
100	Mori Seiki	1 pcs	11/9/17	11/9/17	3.85	1.33	Mori Seiki TL-40		
110	QC	1 pcs	11/9/17	11/9/17	0.00	0.00	QC2		
120	Mori Seiki	1 pcs	11/9/17	11/9/17	0.00	1.33	Mori Seiki TL-40		
130	QC	1 pcs	11/9/17	11/9/17	0.00	0.00	QC2		
140	QC	1 pcs	11/9/17	11/9/17	0.00	0.00	QC8		
145	Crosstubes	1 pcs	11/9/17	11/9/17	0.00	0.37	Crosstube		
150	HandFXtube	1 pcs	11/10/17	11/10/17	0.00	0.32	Crosstube		
160	QC	1 pcs	11/10/17	11/10/17	0.00	0.00	QC7		
170	Packaging	1 pcs	11/10/17	11/10/17	0.00	0.00	Packaging3		
180	QC21-SA	1 Ea	11/10/17	11/10/17	0.00	0.00	QC21		

Part Op 100 - 1-Fill tube with sand & install plugs 206-207 on both ends as per Folio FB030 2-Turn first side as per Folio FB030
Descriptions: 3-Blend transition line with belt sander 60 grit.

120 - 1-Turn second side as per Folio FB030 2-File down transition lines smooth.

145 - GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

150 - 1- handfinish X-TUBE INSIDE AND OUT

170 - LOCATION : LG014

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D6004-115	1	47	0	0

B116 116

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		Skid-t Machin Thermoform Large		ring ality her ☐ ☐ ☐ ☐ Approval			
Date : _____		Step #: _____		QTY E: _____					
Description Work Order Deviation									
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐		No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐		Temperature/Cu. ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/ ☐ Inspection Incom ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Start up Operation Fit/Function ☐ Misaligned/off center ☐ Misread ☐ Turning Sequence ☐	

PART NO:
Revision:
Operation:
Change No:

D206 – 667 – 247TRN

Mfg Date: 11/20/17
Job No: 167823–F

S011823
Crosstube Assembly, Mid Aft

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
TEL: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

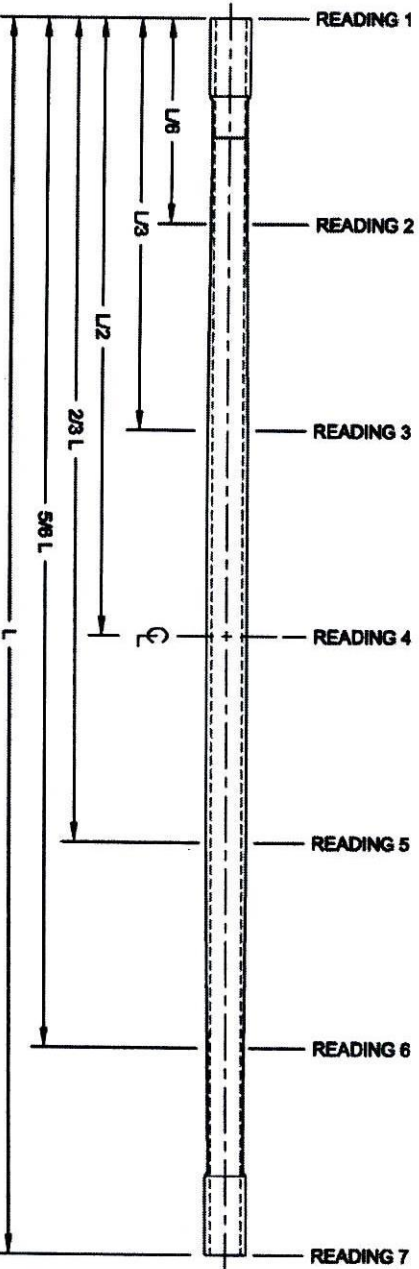
DART AEROSPACE LTD	Work Order:	
Description: Crosstube Assembly, Mid Aft	Part Number:	D206-667-247
Inspection Dwg: D206-667-247 Rev: A		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.490	+0.005/-0.000	2.493	✓		VERN 08	
	2.025	+0.005/-0.000	2.028	✓			
	2.079	+0.005/-0.000	2.084	✓			
	2.145	+0.005/-0.000	2.150	✓			
	2.209	+0.005/-0.000	2.2135	✓			
	2.287	+0.005/-0.000	2.2905	✓			
	2.363	+0.005/-0.000	2.3665	✓			
	0.200	+/-0.010	.201	✓		VERN 08	
	R0.063	+/-0.010	.063	✓		RG	
	R2.00	+/-0.010	2.0	✓		RG	
	R0.063	+/-0.010	.063	✓		RG	
	4.438	+/-0.010	4.433	✓		VERN 08	
SIDE B	2.490	+0.005/-0.000	2.4935	✓		VERN 08	
	2.025	+0.005/-0.000	2.028	✓			
	2.079	+0.005/-0.000	2.084	✓			
	2.145	+0.005/-0.000	2.150	✓			
	2.209	+0.005/-0.000	2.214	✓			
	2.287	+0.005/-0.000	2.291	✓			
	2.363	+0.005/-0.000	2.367	✓			
	0.200	+/-0.010	.200	✓		VERN 08	
	R0.063	+/-0.010	.063	✓		RG	
	R2.00	+/-0.010	2.0	✓		RG	
	R0.063	+/-0.010	.063	✓		RG	
	4.438	+/-0.010	4.438	✓		VERN 08	
	99.76	+/-0.020	99.76	✓		TAPE	

DART AEROSPACE LTD		Work Order:	
Description: Crosstube Assembly, Mid Aft		Part Number:	D206-667-247
Inspection Dwg: D206-667-247		Rev: A	Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	363	355	357	360	.008	0.045"
READING 2 L= 16.63	211	205	202	204	.009	
READING 3 L= 33.25	342	344	344	343	.002	
READING 4 L= 49.88	360	361	364	360	.004	
READING 5 L= 66.506	347	347	344	343	.004	
READING 6 L= 83.133	203	206	205	201	.005	
READING 7 L= 99.26	358	359	358	360	.002	

Calibration Result

Actual Block Thickness: 200-400
 Sitescan 250 Measured Thickness: 200-400

Measured by: <u>PMF</u>		Audited by:		Preliminary Approval:	
Date: <u>2017-11-17</u>		Date:		Date:	
Rev	Date	Change		Revised by	Approved
A	11.06.21	New Issue		KJ	
B	12.02.02	Dimension 4.438 was 4.500		KJ	
C	12.06.01	Wall thickness form added		KJ	

Item	Qty -247	Part Number	Description
1	X	D206-667-247	CROSSTUBE ASSEMBLY (206L MID AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 99.76±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-247" AND BATCH NUMBER ON
INSIDE OF CUFF PER DART QSI 044 6.4 (VIBRATING STYLUS).
- 7) WEIGHT: 21.1 lbs (-607 = 17.7 lbs)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI
015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

DEO ATTACHED

BCU #11-615

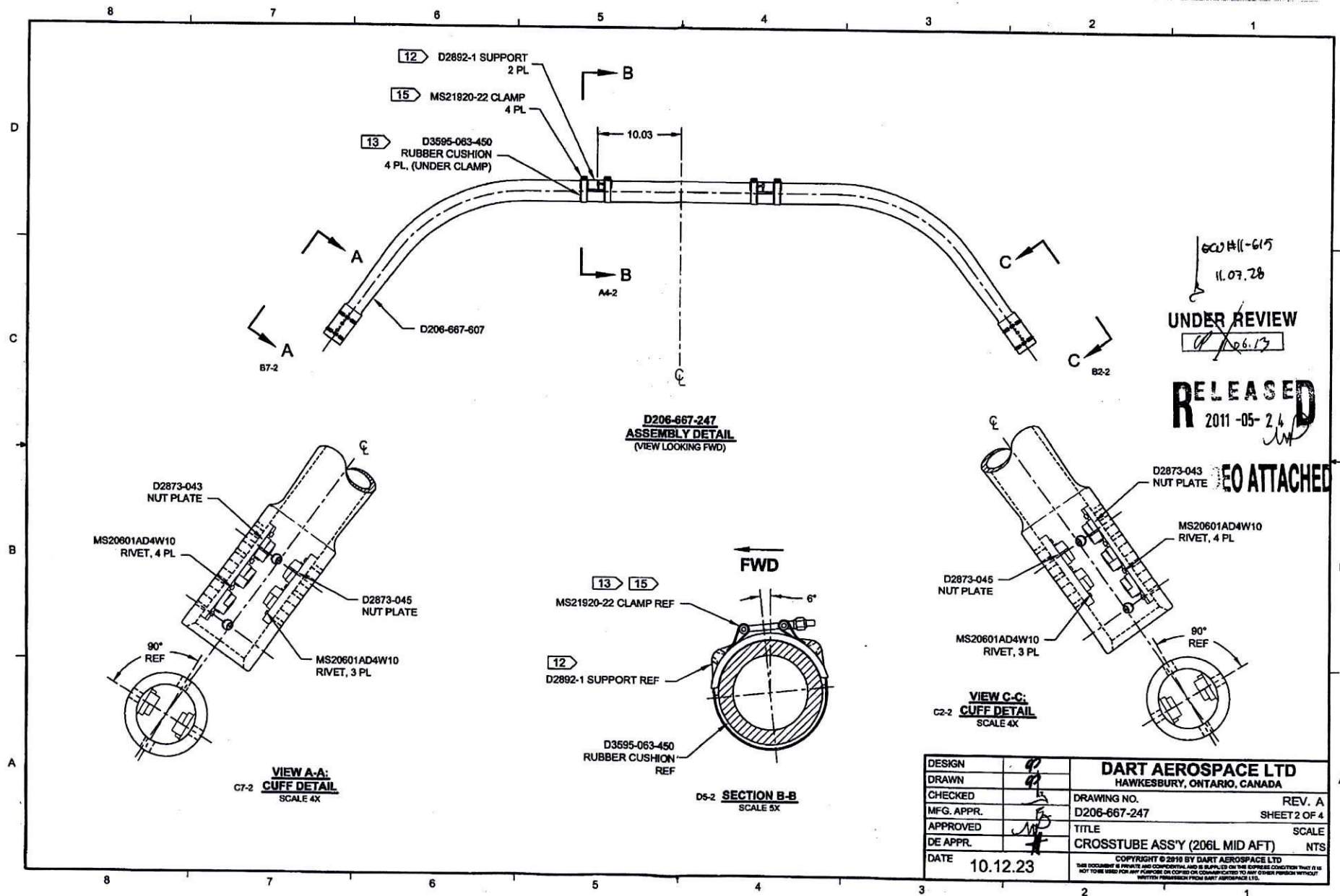
11.09.28

UNDER REVIEW

RELEASED
2011-05-24

A	NEW ISSUE	CP	10.12.23
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.12.23		

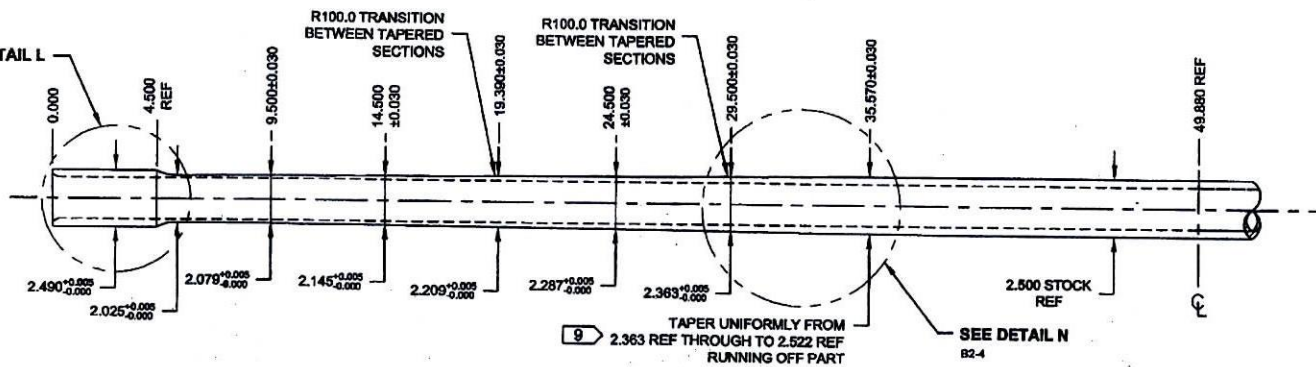
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D206-667-247	REV. A SHEET 1 OF 4
TITLE CROSSTUBE ASS'Y (206L MID AFT)	SCALE NTS
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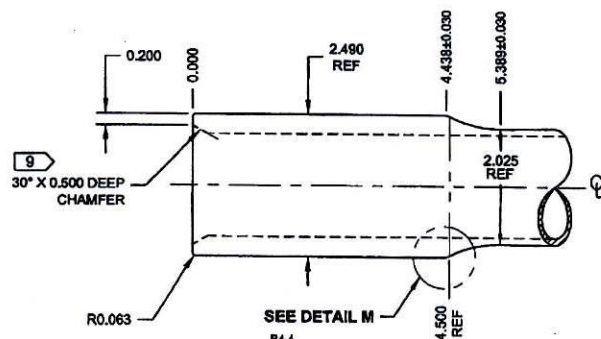
6011(-615)
11.07.28
UNDER REVIEW
2011-05-24
RELEASED

EO ATTACHED

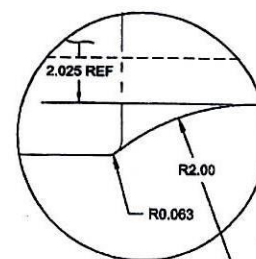
SEE DETAIL L
B7-4



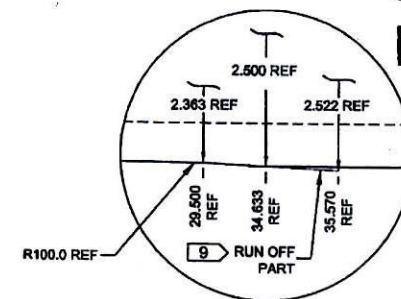
TURNING DETAIL



C7-4 **DETAIL L: CROSSTUBE CUFF**
SCALE 2.5X



B6-4 **DETAIL M: CUFF TRANSITION**
NOT TO SCALE



C4-4 **DETAIL N: TAPER RUN-OFF**
NOT TO SCALE

BCW B (1-617)
11.07.28
UNDER REVIEW
11.08.13

DEO ATTACHED

RELEASED
2011-05-24

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D206-667-247	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (206L MID AFT)	NTS
DATE	10.12.23	COPYRIGHT © 2010 BY DART AEROSPACE LTD	
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DRAWING NO. D206-667-247	TITLE CROSSTUBE ASS'Y (206L MID AFT)	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D206-667-247-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN <i>q</i>	CHECKED <i>ASS</i>	MFG. APPR. <i>KD</i>	APPROVED <i>UMP</i>		DE APPR. <i>#</i>		
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11/07/21		DATE 11.07.21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -247	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
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NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2892-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
UMP